

WHAT IS CLAIMED IS:

1. A transmission system performing optical transmission comprising:

5 a repeater on a sending side including an optical amplifier amplifying an optical main signal, and a fault occurrence recognizing part detecting a pump light used for an opposing device via an optical fiber transmission line to which an optical main signal is sent by the repeater and
10 recognizes occurrence of a fault if the fault occurrence recognizing part fails to receive the pump light; and
another repeater on a receiving side sending the pump light.

15 2. The transmission system according to claim 1, wherein the pump light is a Raman pump light sent by a Raman amplifier.

3. The transmission system according to claim 1,
20 further comprising a light cutoff control part that stops the optical amplifying part outputting an amplified signal so that the light cutoff control in only one of two directions is performed when a fault occurs.

25 4. A repeater performing an optical relay transmission comprising:

an optical amplifier amplifying an optical main signal

by using a pump light; and

a fault occurrence recognizing part that receives the pump light used in an opposing device via an optical fiber transmission line to which an optical main signal is sent by
5 the repeater and recognizes occurrence of a fault if the fault occurrence recognizing part fails to receive the pump light.

5. The repeater according to claim 4, further comprising a light cutoff control part that stops the optical
10 amplifying part outputting an amplified signal so that the light cutoff control in only one of two directions is performed when a fault occurs.

6. The repeater according to claim 4, wherein the pump
15 light is a Raman pump light sent by a Raman amplifier.